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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Masahisa Masuda

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EXAMINER

JAMAL, ALEXANDER

ART UNIT

PAPER NUMBER

2614

MAIL DATE

DELIVERY MODE

07/14/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/595,757	Applicant(s) MASUDA ET AL.	
	Examiner ALEXANDER JAMAL	Art Unit 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) 28-43 and 45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 and 44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Based upon the submitted amendment, the examiner notes that claims 1,2,4,13,15,17,19,23,25,44 have been amended and claims 28-43,45 have been withdrawn.
2. The examiner notes that applicant has used the term 'inductor' to describe the piezoelectric transducer.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
2. **Claims 13-17** rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per **claims 13-17**, the claims recite an inductor. The inductor is the piezo electric transducer. Since the term transducer is used in the parent claim, it is not clear which term is the actual transducer. For the purpose of examination, the examiner assumes the claims recite the transducer instead of the inductor.

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Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-3,5-7,11-12,19,22**, rejected under 35 U.S.C. 102(b) as being anticipated by Hietanen (6415034).

As per **claims 1-3,5-7,11-12,19,22**, Hietanen discloses a two way communication device for use in an ear. The device comprises a dsp that implements an adaptive algorithm to generate filter coefficients that are used to subtract (examiner reads an adder and subtractor as the same device) an echo signal from the transmitted signal (Col 5 lines 25-45, Col 7 lines 5-22). The dsp monitors the transmission and reception through transducers. Since the DSP is digital it inherently operates periodically (as per the clocking rate). The device further comprises a VOX (Fig. 4 items 30,32) to control the gain of the transmitted and received signals. The device further comprises A/D and D/A converters 31,33,35,39. The device further comprises a compensation filter (within DSP 34) used to simulate the echo that is subtracted from the outgoing signal (Fig. 3). The adaptive filter (dsp) is reconfigured (adapted) after a predetermined amount of time (determined by the clocking rate). The adaptive filter (dsp) receives signals from a first input to the analog transducer stage, and from a first output of the transducer stage. Hietanen further discloses that the multiple transducers could be replaced with a single piezoelectric transducer (col 4 line 64 to Col 5 line 10).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. **Claims 4,8-10,20,21,23-24,26-27** rejected under 35 U.S.C. 103(a) as being unpatentable over Hietanen (6415034) as applied to claim 1 above, and further in view of Fang et al. (6480610).

As per **claims, 4,8-10,20,21,23-27**, Hietanen discloses a two way communication device, however, Heitanen does not disclose that the echo cancellation system comprises a test signal being switched on in order to set the parameters of a second filter (in addition to the adaptive echo estimation filter).

Fang discloses an improved echo cancellation algorithm in an ear device. The A/D, D/A converters inherently comprises a low pass filter for the purpose of filtering the output digital signal and the system further comprises attenuators 570a,570m to attenuate both the transmitted and received signals based on a power control. The echo cancelling algorithm comprises utilizing a second filter (training filter) in addition to the primary adaptive filter (Col 4 lines 14-47). The training filter is set by using a training signal impulse that is switched in (switches 594a-594m Fig. 5). Both the training and adaptive filters are periodically updated to adapt for changes in the echo paths. It would have been obvious to utilize the improved echo cancellation algorithm of Fang for the purpose of achieving improved echo cancellation in the device of Hietanen.

5. **Claims 15-18,25**, rejected under 35 U.S.C. 103(a) as being unpatentable over Hietanen (6415034), and further in view of Fang et al. (6480610) and further in view of Schultz (6357292).

As per **claims 15-18**, Hietenan and Fang disclose a two way communications device with a digital echo canceller that utilizes a switch-able test signal to characterize the path of a single transducer, but they do not disclose that a resistive bridge (first second, third, fourth resistors) is coupled to the single transducer.

Schultz discloses a duplex transducer (Fig. 21) coupled to resistive bridge 1322 (Col 27 line 55 to Col 28 line 33) with each direction of communication coupled to a differential amplifier 1132,1334. Schultz further discloses a variable resistance element used in order to adjust the transducer circuitry (Col 6 lines 30-45). It would have been obvious to implement a programmable bridge circuit (variable resistors/capacitors) to provide the desired impedance (a bridge is a known structure which is known to provide an impedance) for the disclosed transducer of Hietanen in view of Fang for the purpose of providing the desired impedance to/from the transducer.

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The examiner notes that providing input/output impedance for each stage is inherent to any circuit design.

As per **claim 25**, it is rejected as per the claim 15 rejection. The transducer inherently comprises amplifier stages in order to drive the output signal and set the input signal to a desired gain. All transducers inherently require amplification to drive the incoming/outgoing signals.

Response to Arguments

1. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498, and whose email address is alexander.jamal@uspto.gov

The examiner can usually be reached on M-F 8AM-5PM.

If attempts to reach the examiner by telephone or email are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499.

The fax phone numbers for the organization where this application or proceeding is assigned are **571-273-8300** for regular communications and **571-273-8300** for After Final communications.

/Alexander Jamal/

Primary Examiner, Art Unit 2614

Examiner Alexander Jamal

July 14, 2009